



CODEWORD®

THE OFFICIAL NEWSLETTER OF THE BOARD OF BUILDING REGULATIONS AND STANDARDS
JANUARY 1998

Kentaro Tsutsumi, P.E.
Chairman

Argeo Paul Cellucci
Governor

Kathleen M. O'Toole
Secretary

Thomas L. Rogers
Administrator

IMPLEMENTATION OF THE SIXTH EDITION

The *Sixth* Edition of the Massachusetts State Building Code (780 CMR) became effective on February 28, 1997.

Implementation of the *Sixth* Edition is as follows;

- From February 28, 1997 to August 27, 1997 the *Fifth* and *Sixth* editions of the Massachusetts State Building Code were made concurrently effective. During this period, end users were permitted to use the provisions of either the *Fifth* Edition in its entirety or the *Sixth* edition.
- The *Sixth* Edition of the code succeeded the *Fifth* edition on August 27, 1997. However the concurrency of the *Fifth* and *Sixth* editions of the One and Two Family dwelling code has been extended to March 1, 1998.
- Corrections and emergency changes were filed on August 27, 1997 (See related article below).
- MEC 95* will become effective March 1, 1998
*NRFC listing and labeling of windows, doors and skylights effective January 1, 1999.

See also related article on Energy Code training on page 3 of this issue.

SIXTH EDITION CORRECTIONS FILED

Corrections to the sixth edition of the code were filed with the Secretary of State on August 27, 1998. These changes were necessary to correct errata and, in some instances, to clarify intent. Changes were filed as either;

1. Corrections (typographical) or;
2. Emergency corrections (essentially changes by nature of clarification) which, under interpretation of the State administrative procedures Act, were considered by the Secretary of State to be changes and not corrections and as such were subject to public hearing and comment.

Amendments are available from the State Bookstore, Room 116, State House, Boston, MA (617) 727-2834

OTHER CHANGES TO THE 6TH EDITION APPROVED

68 Code change proposals were filed for November 1997 Public Hearing. Many of the proposed changes identified errors which had already been corrected in the August 27, 1997 filings. The BBRS took action on the majority of the proposals at its December 1997 hearing which will result in a second set of amendments to the code in early 1998. Some of the changes include;

- Emergency escape window size reverting to the 5th edition size (3.3 sf openable area).
- Definition of span for wood bending members added.
- Mechanical ventilation in all bathrooms required.
- Stair nosing profile clarified
- Winder type stair dimensions amended.
- Model Energy Code (MEC) 95 requirements incorporated into a revised Appendix J.
- Further refinement of energy conservation requirements for existing buildings.

For announcements of these changes, visit the BBRS web page @ <http://www.magnet.state.ma.us/bbbs>

WHY DIFFERENCES BETWEEN BOCA, CABO AND THE MASSACHUSETTS STATE BUILDING CODE ?

The BBRS has 8 advisory committees which provide the necessary technical expertise to the Board to allow the continual development of the Massachusetts State Building Code. The advisory committees are comprised of individuals from private practice and state and local building and fire officials and are charged with advising the BBRS on all code related issues within their respective areas of expertise. The tireless work of these committees allows the BBRS to develop a code tailored to the needs and practices of the Commonwealth.

The BBRS is indebted to the many individuals, firms, associations and state and local authorities which donate their time and expertise, to the Commonwealth.

Committee members are listed on pages iv-vi of the Code

Some notable differences between the 6th Edition and the BOCA National Building include;

- the Administrative provisions in order to reflect Massachusetts General Laws.
- New seismic provisions for existing buildings
- More stringent fire protection requirements
- Provisions for Bulk Merchandising Retail/Storage Occupancies.

....and between the CABO One and Two Family Dwelling Code and the 6th edition;

- Requirement for 2 means of egress in Massachusetts.
- Specific snow load span tables developed for Massachusetts
- Baluster spacing 5" clear.
- Room allowable ceiling heights.
- Energy provisions.
- Smoke detector requirements provide for additional detectors in all bedrooms, battery backup for detectors and photoelectric type detectors in areas subject near kitchens and bathrooms.

BBRS SPONSORED TRAINING - 1997

Over 150 hours of training were provided to approximately 1100 of the Commonwealth's building and fire officials and additionally to practicing architects,

engineers and contractors during calendar year 1997. Seminars given at locations as far West as Pittsfield and as far East as Cape Cod.

BBRS staff participated as guest speakers at 1997 "*Build Boston*" held at the World Trade Center. Build Boston is a major professional conference sponsored by the Boston Society of Architects. Over 200 architects, engineers and building officials attended the BBRS sponsored seminars at this years *event*.

The Department of Public Safety has also provided expertise, in the form of District Inspectors Gordon Bailey and Paul Piepiora who have delivered over 300 hours of training to building officials preparing for certification examinations.

Other than the *Build Boston* seminars - all trainings were provided *free of charge*.

BUILDING OFFICIAL CERTIFICATION EXAMINATION PREPARATION COURSES

Examination preparation courses of instruction for the BOCA examinations have been scheduled for February thru' April, 1998 at two separate locations. If you would like to register and have not yet received an application form from the BBRS please call (617) 727-3200 (x614). The courses are open to anyone, however class sizes are limited and preference will be given to building officials. The instructor is District State Inspector Gordon Bailey.

- Local Inspector Certification Examinations
Scheduled test dates and registration deadlines for the coming year are listed below. These tests are computer based, and there is a **window** of test dates instead of a single test date.

Examination Dates: Registration Deadlines:

February 21 thru' 28, 1998 January 12, 1998

April 25 thru' May 2, 1998 March 16, 1998

June 20 thru' 27, 1998 May 8, 1998

August 22 thru' 29, 1998 July 10, 1998

October 24 thru' 31, 1998 September 10, 1998

December 12 thru' 19, 1998 November 1, 1998

Examinations are given at Sylvan Technology Centers, in Boston, Woburn, East Longmeadow and Worcester. For the center closest to you, call 1-(800) 485-1081.

- *Inspectors of Buildings/Building Commissioners:*

Tests for certification as *Inspector of Buildings - Building Commissioner* will continue to be paper and pencil administrations for the foreseeable future. Call (205) 599-9794 for information regarding these examinations.

LOW RISE RESIDENTIAL ENERGY CODE TRAINING

The BBRS is pleased to announce its winter 1998 energy code seminar schedule. This training is provided *free of charge*. Please register early as space is limited and training is also open to the general public.

January 21 - Dedham - 1pm- 4pm

January 27 - Westboro - 9am- 12pm

January 29 - Springfield - 9am-12pm

February 3 - W. Bridgewater - 9am to 12pm

February 10 - W. Springfield - 9am to 12pm

February 11 - Wareham - 9am to 12pm

February 26 - Lowell - 9am to 12pm

Call 1-800-689-7953 to register.

For future seminar dates, visit the BBRS web Page @ <http://www.magnet.state.ma.us/bbbs>

CONGRATULATIONS JEFF COATES

The BBRS extends congratulations to Jeffrey R. Coates R.A., Building Commissioner, Weymouth, on his election to the Board of Directors of BOCA at the recent BOCA Annual Conference in Norfolk, Virginia (September 29 - October 2, 1997).

.....AND TO THE MASSACHUSETTES BUILDING COMMISSIONERS AND INSPECTORS ASSOCIATION
On being awarded BOCA's "*Chapter of the Year*" - 1997- for professional excellence and commitment to education.

.....TO ROB ANDERSON
of the BBRS staff on his election to chairman of the Board of Governors of the National Certification Program for Construction Code Inspectors, the organization responsible for overseeing the development of the national certification examinations.

.....AND TO BRIAN GORE
of the BBRS staff on his election as President of the New England Building Code Association (NEBCA) 1997.

CERTIFICATION OF ELEVEN BUILDING OFFICIALS REVOKED

Following the first three year renewal period for certification, the following certified building officials failed to maintain their continuing education requirements as required by 780 CMR R-7. Following public hearings on September 24, 1997 and October 21, 1997, the certification committee recommended that the Board of Building Regulations and Standards revoke their certifications as building officials. At regular meetings of the BBRS on October 14 and November 9, 1997 the BBRS, voted unanimously to revoke the certifications of the following building officials;

Charles Abysahl	Certification # 92-11-173
Robert Anders	Certification # 92-11-552
Bruce Ferguson	Certification # 92-11-433
John Larkin	Certification # 92-11-344
Ronald Scott	Certification # 92-11-426
Robert Sinibaldi	Certification # 92-11-333
Thomas Walsh, Jr.	Certification # 92-11-356
Wayne Wilson	Certification # 92-11-355
Carl Anderson	Certification # 92-11-304
Roy Burdick	Certification # 92-11-198
Brian Driscoll	Certification # 92-11-230

All of the above officials accrued zero hours of continuing education credits during the first cycle - a total of 45 hours per 3 years is required to maintain certification.

For a listing of certified building officials visit the BBRS web site @ <http://www.magnet.state.ma.us/bbbs>

RECENT STATE BUILDING CODE BOARD OF APPEALS DECISION

One and Two Family Dwelling Second Means of Egress

In a recent case, the State Building Code Appeals Board answered the question of whether, an exit through an attached garage was acceptable as a second means of egress from a single family dwelling.

The building commissioner refused to issue a *certificate of use and occupancy* for the single family dwelling, interpreting the code to prohibit a second means of egress through an attached garage. The Building Commissioner's basis for this interpretation was that he considered such a space to be potentially hazardous citing the building code's explicit requirements that attached garages be separated from the dwelling by 5/8" type X gypsum board, a 20

minute fire resistance rated door and a 4 inch raised sill and prohibiting openings into sleeping rooms.

The single family dwelling in question was constructed with a code complying main entrance door serving as the primary means of egress and rear sliding patio doors which provided access to an exterior elevated deck. The code permits a sliding type door as a second means of egress, however, in this particular case, orders of conditions issued by the local conservation commission specifically prohibited the construction of stairs from the deck. The attached garage, in addition to being provided with an overhead type garage door, was accessed from the kitchen area by a 20 minute fire rated door and a second side hinged door provided access to the exterior of the building.

The one and two family dwelling code is silent on what constitutes (or does not) an acceptable location for a second means of egress.

The Board of Appeals determined that a garage attached to a single family dwelling is not a potentially hazardous space (compared to the dwelling) and that the egress through the side hinged swinging door was acceptable as means of egress. As a point of clarification the Appeals Board also noted that absent the side hinged door an overhead door would not be considered as providing an acceptable means of egress.

STATE BUILDING CODE APPEALS BOARD RELOCATES

All State Building Code appeals are now held at the National Guard Armory in Wellesley, MA. Approximately 1 mile West of Route 128/I-95 on Route 9 West. The Appeals Board mailing address remains One Ashburton Place, Boston, MA. 02108.

For a listing of 1998 scheduled hearing dates and directions to the armory visit the BBRS web page @ <http://magnet.state.ma.us/bbbs>

ACCEPTING THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER

An increasing number of inquiries have been made to the BBRS relative to the use of professional engineers seals. Apparently some building officials continue to reject plans for structural work prepared by registered professional engineers where the seal shown on the plan is not that of a registered structural engineer. This practice is contrary to the registration laws of the

Commonwealth (as interpreted by the Board of Registration of Professional Engineers and of Professional Land Surveyors - the Board of Registration) and contrary to the BBRS Official Interpretation Number 38-94 which was developed with the approval of the Board of Registration (See Sixth Edition Appendix B).

Under the Commonwealth's registration laws (MGL c 112 §§ 81D -81T), the professional engineer is required to limit practice to areas of personal competence. The Board of Registration is the only authority empowered by law to determine the competency of a registered professional engineer. Rejection of an engineer's seal by a building official based solely on the discipline shown thereon constitutes a negative determination of competency - such determination reserved solely for the Board of Registration.

BBRS MEMBER PROFILE

This and future editions of *Codeword* will feature profiles of BBRS members. The featured member in this edition is Professor ***Kentaro Tsutsumi***, (Ken) the current Chairman of the BBRS.

Ken has been a member of the BBRS since its inception in 1975 and has, throughout his tenure, been an inspiration to his fellow Board members and staff.

Ken serves as the representative of the registered professional structural engineers and also represents the BBRS on the following advisory committees;

- Seismic Advisory Committee
- Construction Materials Safety Board
- Construction Supervisor License Examination - Question writing committee.
- Fire Safety Commission Member (*ex officio*)

Ken is professor emeritus at Tufts University Department of Civil Engineering where he currently teaches a course entitled "Earthquakes, Hurricanes, and Public Safety".

Ken earned a degree in Civil Engineering at the University of Hawaii and completed graduate studies at M.I.T.

Ken's professional accomplishments are numerous, but some of his most notable achievements include being part of the MIT team which developed the first successful navigational gyroscope for submarines, ships

and aircraft. Ken was also involved in a team which, 50 years ago, designed and constructed the largest closed loop, interchangeable throat wind tunnel in the world. That wind tunnel is still in use today and is capable of testing both sub and super sonic aircraft models, engines and propellers. Ken has also been involved in the design of earthquake resistant structures, many of which have experienced at least four earthquakes and have therefore experienced the ultimate *insitu* load tests.

Ken lists maintaining physical fitness among his many interests and maintains a daily regimen of swimming.

CHANGES TO THE MANUFACTURED BUILDINGS PROGRAM.

Construction of a *manufactured building*, under the BBRS manufactured building program authorizes a certified manufacturer to construct buildings off- site and authorizes, so called approved third party inspection agencies, to inspect construction in the manufacturing plant as work proceeds. Construction typically occurs in three very distinct phases;

1. Construction of the individual units occurs under cover and in controlled environments, eliminating weather related delays and concerns. Construction and inspection occurs in an assembly-line type fashion. Upon completion the individual units are transported to the site and connected to form the complete building. Sizes of individual units is limited by transportation issues.
2. The individual units which comprise the building are transported to the site and placed on a foundation system constructed by the owner or owner's builder.
3. Final work necessary to connect the units and complete all other field related issues are completed by the owner or the owner's builder.

Complaints received by the BBRS usually can be attributed to events occurring at the site as the buildings are "set" and completed and typically result from;

1. Improper field work during placement of the units on the prepared foundation by persons who may be unfamiliar with this type of construction and/or;
2. Poor communication between the owner, purchaser, dealer and the manufacturer, particularly misinterpretation of field construction details on manufacturers plans, or changes required by the

owner which are not transmitted to the manufacturer and/or;

3. Improper construction of the foundation system.

The sixth edition includes changes which are intended to minimize future problems during the site construction phase of the construction of a manufactured building.

- A homeowner is no longer permitted to act as the construction supervisor for the construction of a manufactured building. A licensed construction supervisor is now required to be in care and control of all of the work, with the exception of the actual placement of the units onto the foundation system. The application for building permit must include a licensed construction supervisor who is required to be responsible for all site construction and co-ordination of work with the manufacturer.
 - The supervision of the placement of the units on the completed foundation system must be by an individual certified by the particular manufacturer of the building. Certification must be on official letterhead of the manufacturer and must be filed at the building permit application stage. The manufacturer certified individual must also show proof of identification in the form of a picture identification (this individual need not possess a construction supervisor's license provided that the individual limits work to setting the building only). Picture identification may be in the form of a drivers license, or other acceptable form of picture identification.
-

MORE ON LICENSED CONSTRUCTION SUPERVISORS

Since the inception of the Construction Supervisor License Program in 1982, the Board has issued licenses in two categories;

- Restricted to the supervision of construction of *One and Two Family Dwellings* of any size and;
- Restricted to the supervision of construction of any building up to *35,000 cubic feet of enclosed space*.

The licensing requirements were designed to supplement the architectural registration laws (MGL c 112 § 60L) which mandate that the construction of all buildings

and structures containing over 35,000 cubic feet of enclosed space be under the control of a registered architect.

New licenses and renewals of existing licenses issued after January 1, 1997 now contain a photograph of the license holder. For information on license holders and disciplinary actions license holders visit the BBRS web page @ <http://www.magnet.state.ma.us/bbbs>

RECENT ADDITIONS TO THE BBRS STAFF

The BBRS extends a warm welcome to the following staff members who (relatively) recently joined the ranks of the BBRS staff.

DAVID

Mr. David Weitz has joined the BBRS as its Energy Code Coordinator.

David has worked in the construction trades since 1975, and graduated from Brown University, where he focused on environmental studies and the history of technology, with emphasis on the built environment.

David brings five years of experience working as a plans evaluator, inspector, and lecturer on energy efficient new home construction, as part of the New England regional Energy Crafted Homes program. David's theoretical and "in-the-field" knowledge will be invaluable to BBRS, where he is responsible for the development and delivery of trainings on the energy conservation requirements for new low-rise residential buildings, as found in the 6th Edition of the Code.

Numerous training sessions have been planned for 1998 and beyond, and building officials will be given continuing education credits for their attendance. For information on training dates, see related article on page 3 of this issue of *Codeword*. To register for trainings, call 800-689-7953, or visit the BBRS web page @ <http://www.magnet.state.ma.us/bbbs>.

If you have particular questions for David directly, he can be reached at the BBRS: 617-727-3200, ext. 652.

MARIAN

Ms. Marian Doyle joined the BBRS staff in February of 1996. In September of 1996, Marian was appointed as the manager of both the Home Improvement Contractor and the Construction Supervisor Licensing programs.

Marian attended the University of Massachusetts in Boston and studied in the field of Business Management., Marian was formerly employed by the City of Boston, Inspectional Services Department and has also been employed in various capacities in both private industry and Federal agencies.

Marian's responsibilities include bringing contractors before either the License Review Committee or the Director of the Home Improvement Contractor Program for disciplinary hearings.

For information on the Home Improvement Contractor Registration Program or the Construction Supervisor Licensing Program, you can contact Marian directly at 617-727-3200, ext. 659.

To check contractor license or, registration numbers, or disciplinary actions taken against contractors, visit the BBRS web page @ <http://www.magnet.state.ma.us/bbbs>

JULIE

Julie Allan joined the BBRS in July of 1996. She holds a degree in Early Childhood Education from Quincy College and spent time working in the field before coming joining the BBRS. Julie also worked for the Boston Police Department as a 9-1-1 emergency call taker - a skill which Julie finds invaluable when handling those emergency code interpretation calls. Julie also assists in the Building Inspector Certification and Manufactured Buildings Program.

.....AND JEFF

Jeff Putnam holds a Bachelors degree from Bridgewater State College and joined the BBRS, in the Home Improvement Registration Program in March, 1996. Jeff formerly worked as a student intern with the BBRS where he assisted in the production of the 6th edition.

BBRS WEB PAGE UPDATE

The BBRS Web Page has been recently updated and now includes information such as;

- Listings of Certified Building Officials and Provisionally appointed Building Officials.
- Disciplinary actions taken against Construction Supervisor License Holders, HIC Registrants and Certified Building Officials.
- BBRS 1998 meeting and public hearing schedule.
- 1998 Appeals Board Hearing schedule.
- Upcoming Training.

- "Codeword"
- Link to the *Building Officials of Western Massachusetts* (BOWM) Web Page.

Please contact us if you have any suggestions for the web page. The BBRs Web Page address is;
<http://www.magnet.state.ma.us/bbrs>

STATE INSPECTOR' S COLUMN

by

District Inspector Peter C. Goodale

Diligent plan review is impossible when the applicant fails to provide the required *construction documents*. In addition to the "general" language of Section 110.7, other sections of the Code specify requirements for plan submission that can be brought to the attention of the applicant (ideally) prior to the actual permit submission. Sections of the Code that can be attached to the application to inform the applicant of the Code requirements for construction documents include;

Section 110.7 which requires the "*Construction Documents*".

Section 202.0, General Definitions, in which "*Construction documents*" are: "*All of the written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of the project necessary for obtaining a building permit. The construction drawings shall be drawn to an appropriate scale.*"

Section 110.8, Engineering Details, Reports, Calculations, Plans and Specifications, includes more detail as to the requirements for construction documents when the project is to be subject to construction control. This degree of detail, however, may be required for any project under the general definition of "construction documents" when the complexity of the proposed construction requires more detailed description.

Section 703.1 requires the designation of the type of construction and the fire resistance rating of all structural elements. Section 703.2, Penetrations requires the construction documents to indicate where penetrations will be made and the materials and methods for maintaining the required structural integrity, fire resistance and firestopping. Where plans

do not fully describe the totality of all penetrations, it is not unreasonable to request the architect/engineer prepare a set of "Penetration" plans which describe all penetrations of rated assemblies.

Section 903.1.1, Fire Protection Construction documents identifies eighteen (18) items that must be specifically addressed to completely describe the fire protection system(s), including operational features. Sections 903.1.2, 903.1.3 and 903.1.4 identify plan, design and "as-built" plan requirements.

Section 3402.1.1, Investigation and evaluation requires the analysis (in accordance with Appendix F) of the existing building to be altered. Section 3401.2 requires this analysis in written report format and Section 3402.1.5 requires the documentation of any compliance alternatives proposed including applicable plans, test data or other data for evaluation.

Once you have received these plans and documents you will be ready to receive the amendments to a plan, application or other records as required by Section 110.13.

FLOOR PROTECTION REQUIREMENTS FOR HEAT PRODUCING APPLIANCES - USE OF APPENDIX K

by

Thomas M. Riley

Appendix "K" of the Sixth Edition of the Code, in conjunction with 780 CMR 3610.6.7.1, is designed to provide guidance on *floor protection* requirements associated with both solid fuel burning appliances and other heat producing appliances such as factory-built fireplaces.

Although listing clearances to combustibles are always provided for wood-burning stoves and factory built fireplaces; *floor protection* requirements are often not provided or such information is only included with the manufacturer's Installation/Users Manual and is not found on the appliance on any permanently attached label.

Recently, James Brandolini, the Inspector of Buildings in Hull, came across a factory-built fireplace installation where the building owner had provided a hearth extension made of stone.

Jim noted that the manufacturer's Installation, Operation and Maintenance Manual contained guidance

on hearth extension materials relative to the use of ceramic tile or stone or other traditional masonry materials. The manufacturer included an explicit note which read: *"The insulating value of most masonry materials (including tile, brick, stone, concrete, cement) is minimal. In using traditional masonry hearth materials, it is often necessary to use such in combination with an insulating board of appropriate k or R value as per the manufacturer's specifications."*

Although it seems to defy logic, even thick pieces (several inches or even greater thicknesses) of stone, brick, tile, etc. **typically do not possess** the insulating qualities that a hearth extension must have to preclude fire, should a hot coal fall onto the hearth extension - all due to a material property of all materials referred to as the *thermal conductivity (k)*.

On becoming aware of the issues, the fireplace manufacturer's technical personnel investigated and confirmed that the stone hearth extension, by itself, did not provide adequate *floor protection*.

Good call, Jim!

Lessons learned:

1. Stock masonry materials do not necessarily possess sufficient insulating values when utilized as *floor protectors* even when such materials are utilized in measurable thicknesses (many inches of thickness of such materials still may not be adequate).
 2. Always verify that manufacturer's *floor protection* requirements are being met when inspecting heat producing appliance installations.
-

For a one year subscription to *Codeword* print this page, complete the application below and mail to the Board of Building Regulations and Standards, One Ashburton Place, Room 1301, Boston, MA 02108 (Attention *CODEWORD* SUBSCRIPTION) with your personal check or money order endorsed to the Commonwealth of Massachusetts in the amount of sixteen dollars (\$16.00) US. Codeword is a quarterly publication.

At this time the Board of Building Regulations and Standards cannot accept orders via E mail.

Application for subscription to *Codeword*

Please Print	STATE USE ONLY
Name: _____	Check Number: _____
Address: _____	Date Received: _____
City/Town: _____	Initial Subscription
State: _____	Start Date: _____
Zip: _____	Internet